



Climate science in support of sustainable agriculture and food security

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Abstract:

Agriculture is deeply interconnected with weather and climate, the main drivers of agriculture production, but also the dominant factors in the overall variability of food production. Agriculture constitutes the principal livelihood of 70% of the world's poor; many of them are hungry and living in vulnerable, climate-sensitive areas. Since the undernourished population reached 1 billion persons in 2009, raising food production by some 70% to meet the needs of a projected world population of 9.1 billion people in 2050 may be one of the greatest challenges of the century. In addition, changes in climatic conditions are already having impacts on agriculture and the use of natural resources for food production. Climate science has much to offer in addressing these challenges, especially with respect to the characterisation of agroclimatic resources and development of climate-responsive food and agriculture policies, programmes and practices. However, as food systems expand into marginal and vulnerable areas, the need for a renewed, holistic focus is becoming evident, taking into account ecological, economic and social perspectives. Climate and agriculture services must therefore consider climate as a resource, understand current and future vulnerabilities and risks, and develop synergies that embrace innovation in climate science in order to facilitate sustainable agriculture and food security. The emerging ability of climate science to provide timely and accurate climate information, together with innovative tools and methods for analysis, presents opportunities for managing current climate risks and for initiating strategic climate-resilient adaptation in agriculture. However, to make effective use of these advancements, action-oriented climate advice should integrate information on different time scales (intra-seasonal, seasonal and long-term) for risk/opportunity management and strategies for optimal and sustainable use of land, water and genetic resources. Strong partnerships and collaboration among international institutions, national hydrometeorological services, agricultural extension agencies, national research institutions, community-based organisations and social networks are a prerequisite for the advancement of action-oriented advice. All of these efforts present key challenges, but offer immense opportunities, for both climate science and agriculture services, with respect to supporting sustainable agriculture and food security. © Inter-Research 2011.

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Resource Description

Communication:

resource focus on research or methods on how to communicate or frame issues on climate change;
surveys of attitudes, knowledge, beliefs about climate change

A focus of content

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Communication Audience:

audience to whom the resource is directed

Policymaker

Early Warning System:

resource focus on systems used to warn populations of high temperatures, extreme weather, or other elements of climate change to prevent harm to health

A focus of content

Exposure :

weather or climate related pathway by which climate change affects health

Food/Water Security

Food/Water Security: Agricultural Productivity, Food Access/Distribution

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Global or Unspecified

Health Impact:

specification of health effect or disease related to climate change exposure

Malnutrition/Undernutrition

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Population of Concern: A focus of content

Population of Concern:

populations at particular risk or vulnerability to climate change impacts

Low Socioeconomic Status, Workers

Resource Type:

format or standard characteristic of resource

Review

Resilience:

capacity of an individual, community, or institution to dynamically and effectively respond or adapt to

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shifting climate impact circumstances while continuing to function

A focus of content

Timescale: 

time period studied

Time Scale Unspecified